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How to realize the power of GenAI efficiently and sustainably

Solutions and services from Dell Technologies help you reach your business goals and accelerate GenAI initiatives with minimal environmental impact.

Bringing your ambitions to fruition with artificial intelligence (AI) does not need to be a complex, lengthy endeavor that clashes with your standards for energy efficiency and sustainable operations.

In this white paper, we discuss how expert services and AI-ready solutions from Dell Technologies help you bring speed, simplicity, sustainability and security to your transformative AI initiatives.

Unleashing GenAI opportunities without compromising energy efficiency

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Across industries, AI is powering transformations that help organizations innovate and accelerate progress toward their goals.

In a 2023 Dell Technologies survey, 76% of IT leaders said they believe that generative AI (GenAI) will be significant or transformative for their organizations.[1] A potential adoption challenge is that, while AI can help you gain an edge in performance, competitiveness and sustainability, its high consumption of resources like power and water can incur substantial environmental impacts and costs. GenAI involving large language models (LLMs) and trillions of parameters can be particularly demanding.

Analysts have identified this concern and offered ideas for thoughtful AI planning. For example, Gartner recommends carefully monitoring energy consumption, keeping data used in AI model training local, managing AI workloads to coincide with the production of renewable power and including environmental considerations in AI strategies.[2] Harvard Business Review suggests reusing and fine-tuning already existing GenAI models instead of creating your own, deploying GenAI and LLMs where they can truly make a difference and using energy-efficient computational methods.[3]

Practically, it takes the right expertise and solutions to deliver on the promise of AI while reducing its environmental impact. With the industry's broadest GenAI portfolio, incorporating our ongoing AI and sustainable innovation, Dell Technologies offers you a low-risk path to achieve this goal. Our infrastructure and client solutions, along with software and services, help you design and implement AI that suits your use cases and is also highly secure and resource-efficient.

> "At Dell Technologies, we believe in delivering the most efficient, most effective, most sustainable AI infrastructure for what customers are trying to deploy. This means integrating with the right architecture and technology to support their needs."[4]
>
> John Roese, Global Chief Technology Officer, Products and Operations, Dell Technologies

Simplify and accelerate GenAI and sustainability objectives

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Hardware and software solutions developed and built with security and sustainability in mind allow you to implement high-impact GenAI projects quickly while improving your energy efficiency.
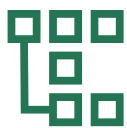
Dell Technologies helps you store and safeguard data and intellectual property so you can realize beneficial sustainability outcomes securely by using your existing data assets to fuel actionable insights with GenAI. You can prioritize sustainability — and do so profitably — as one of your GenAI use cases while moving your business ahead.

Sustainable GenAI enabled by Dell Technologies can rapidly deliver practical insights from your data so you can identify and act on opportunities for using energy more efficiently and reducing waste caused by emissions and pollution.

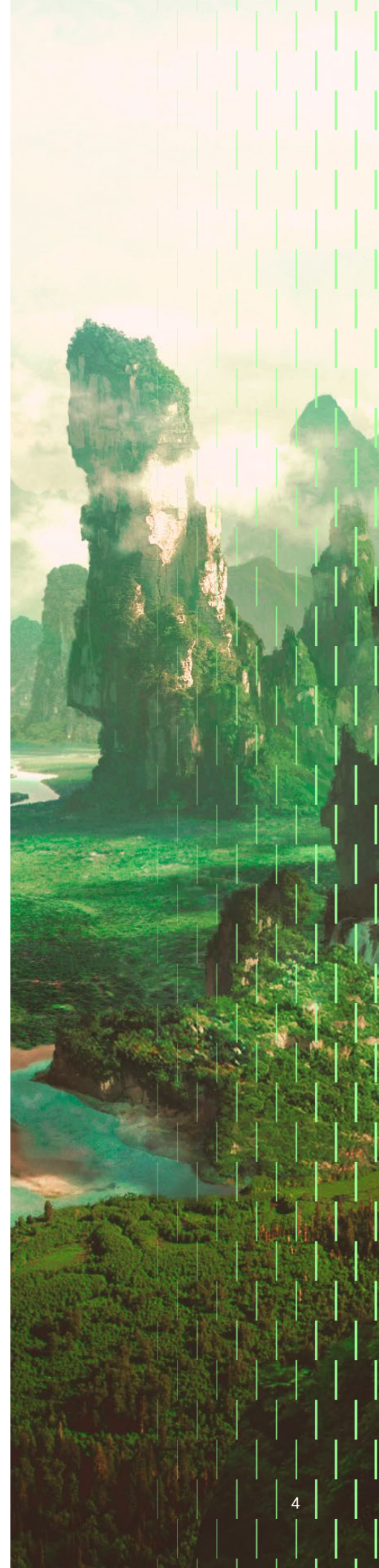**Dell Technologies offerings that make this possible include:**

AI-ready data storage solutions allow you to quickly and efficiently design, create and secure GenAI models built on your organization's data assets.

Dell OpenManage Enterprise Power Manager and **Dell CloudIQ AIOps** software facilitate real-time monitoring and management of energy usage and corresponding greenhouse gas emissions.
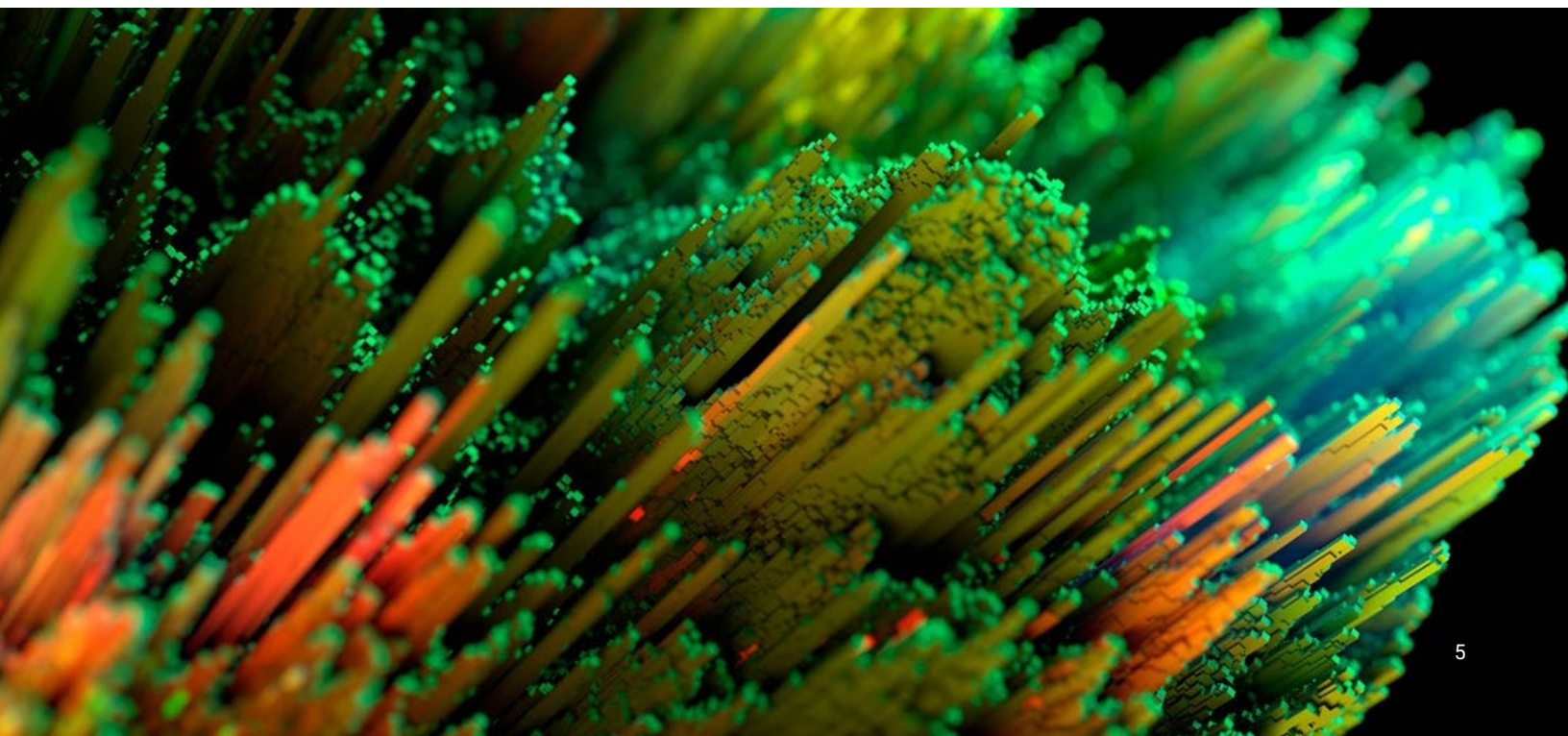
Dell CloudIQ offers predictive analytics to help you understand and forecast capacity needs.

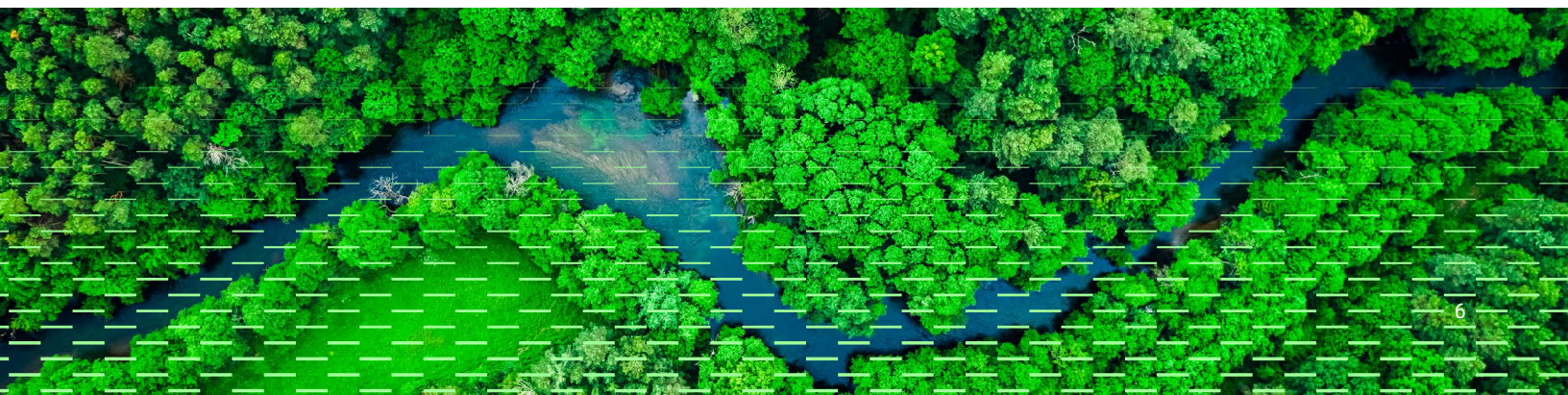# Right-size and scale GenAI to meet your unique business needs

Dell Technologies offers practical guidance and production-ready solutions to help you make the right decisions as you chart your organization's path to implementing, scaling and evolving GenAI.

For example, we can provide GenAI solutions to help you right-size your investments and minimize your environmental footprint. Because GenAI model training usually has a huge power draw, we offer pre-trained models, augmented with your data, which may well suit your use cases while having less of an impact on resources and the environment. What's more, our GenAI experts can assist you in performing inferencing on client devices, thereby greatly reducing power draw. In addition, we work with you to plan where your data lives and is processed — at the edge, in the public cloud, in the private cloud or on premises. With expert assistance, you can choose the most advantageous options, including colocated data centers powered by renewable energy.

How Dell Technologies helps you right-size and tailor GenAI:

- **Dell PowerEdge XE9680 server with an AMD Instinct™ MI300X accelerator** delivers the high performance that allows you to unlock the value of your data and gain a competitive edge by training your own customized LLMs.

- On **Dell Precision Workstations**, you can use your own data and run quantized AI models locally with a minimal infrastructure footprint.

  - The **Precision 7875 AMD Tower** — our most scalable and powerful AMD processor–based workstation ever — is AI-ready with **AMD Ryzen™ Threadripper™ PRO featuring 96 cores.**

  - Dell Precision Workstations with **NVIDIA® RTX™ 6000 Ada Generation GPUs** let your AI developers and data scientists develop and refine GenAI models locally before developing at scale.

- AI-based **Dell Optimizer software**, built into Dell Precision Workstations, improves performance across applications by learning how people work. Users running GenAI models on mobile, battery-powered workstations can boost application performance while reducing battery draw.

- Professional Services help you **streamline and right-size GenAI initiatives**, including:

  - Dell Data Preparation Services, which provide you with clean and accurate datasets in the right format to enable AI projects to advance smoothly while simplifying data integration.

  - Dell Implementation Services reduce time to value by helping you establish an operational GenAI platform for inferencing and model customization.

  - **Dell Education Services** enable you to bolster GenAI skills in your organization.

Ensure that GenAI is secure, private and ethical

You need to maintain data sovereignty to be certain that GenAI models based on your data assets follow your standards and policies for ethical, responsible technology use.

Without strong security, you also might leave intellectual property or GenAI and sustainability initiatives at the risk of data theft and other cybercrime. Potentially compromising data sovereignty or IP integrity is a serious challenge for businesses considering or using hosted cloud environments.

Illustrating the urgency of this concern, 37% of the respondents in the 2023 Dell GenAI Pulse Survey indicate that their data and intellectual property are too valuable to be placed in a GenAI tool to which a third party might have access.[5] Some companies we talk to feel that on-premises solutions are the best way to maintain data sovereignty as they pursue GenAI. To help businesses maintain data sovereignty as they delve into GenAI, Dell Technologies consultants often recommend using GPU-as-a-Service offerings that provide encryption and avoid hosted GenAI tools that could expose sensitive data. You might also consider solutions like Microsoft 365 Copilot, which comes with enterprise-level data protection to prevent unauthorized access to your data.

37%

of the respondents in the 2023 Dell GenAI Pulse Survey indicate that their data and intellectual property are too valuable to be placed in a GenAI tool to which a third party might have access.

Once Dell Technologies experts understand your objectives, they can work with you to maintain full control over your GenAI models and refine them in your own environment whenever possible. That way, you can more easily ensure that your GenAI projects align with your ethical standards and that the integrity of data and intellectual property remains intact.

How Dell Technologies supports safe and ethical GenAI:

- **Dell PowerScale AI-Ready Data Platform** is the world's most secure scale-out file storage.[6]

- **Dell ECS Enterprise Object Storage** supports your GenAI and other enterprise workloads with highly secure object storage and reduces your total cost of ownership (TCO) by up to 76% over the public cloud.[7]

- **Project Fort Zero** will be the industry's first commercial, fully-configured Zero Trust private cloud system.[8]

↑76%

Dell ECS Enterprise Object Storage supports your GenAI and other enterprise workloads with highly secure object storage and reduces your total cost of ownership (TCO) by up to 76% over the public cloud.

Take the next step with a trusted partner

Your GenAI and sustainability outcomes depend not on one product or best practice, but on the right combination of expert intelligence, strategy, technology and services. Dell Technologies can provide guidance and deliver on all these elements. Our consultants work as trusted advisors whose mission is to help you realize the benefits of GenAI for your specific business and its opportunities.

To move your high-impact, sustainable GenAI initiatives ahead, you can:

- **Contact Dell Technologies enterprise sales.**

- **Visit our GenAI page.**

- **See what's in our GenAI solutions portfolio.**

- **Understand our vision of shared, secure and sustainable AI.**

- **Learn more about how we're advancing sustainability.**

1. Dell Technologies, **The Dell GenAI Pulse Survey**, October 13, 2023.

2. Kasey Panetta, **Keep AI From Doing More Climate Harm Than Good**, Gartner, August 28, 2023.

3. Ajay Kumar and Tom Davenport, **How to Make Generative AI Greener**, Harvard Business Review, July 20, 2023.

4. John Roese, **The Three S's: Regulating AI Through Shared, Secure and Sustainable Approaches**, Politico, September 6, 2023.

5. Dell Technologies, **The Dell GenAI Pulse Survey**, October 13, 2023.

6. Based on Dell Technologies analysis comparing cybersecurity software capabilities offered for Dell PowerScale vs. competitive products, September 2022.

7. Tony Palmer, ESG Economic Validation sponsored by Dell Technologies, "Analyzing the Economic Benefits of Dell ECS: Economic Benefit Analysis of On-premises Object Storage versus Public Cloud," July 2022. Cost savings based on ESG comparison of Dell ECS to a leading public cloud in active storage scenarios. Actual results may vary.

8. John Roese, **A Chief Technology Officer's Vision Board for 2024 and Beyond**, Forbes, December 7, 2023.

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